

Malcolm X Shabazz High School
Green Infrastructure Information Sheet

<p>Location: 80 Johnson Avenue Newark, NJ 07108</p>	<p>Site Use: School</p>
<p>Ward: South</p>	<p>Watershed Name: Newark Airport Peripheral Ditch</p> <p>Targeted Pollutants: total nitrogen (TN), total phosphorus (TP), and total suspended solids (TSS) in surface runoff</p>
<p>Green Infrastructure Description: Cisterns Rain garden</p>	<p>Estimated Stormwater Captured and Treated Per Year: Cistern: ~3,703 gallons Rain garden: ~7,400 gallons</p>
<p>Implementation Date: 10/17/14 (Cistern) Green Infrastructure System: one (1) 200 gallon cistern and one (1) 180 sq.ft. rain garden Drainage Area: ~300 sq. ft. (rooftop)</p>	
<p>Funding Sources: NJ Department of Environmental Protection 319 (h) Grant</p>	
<p>Partners/Stakeholders: Rutgers Cooperative Extension Water Resources Program, Malcolm X Shabazz High School, NJ Department of Environmental Protection, Greater Newark Conservancy, New Jersey Tree Foundation, and Newark DIG</p>	
<p>Appendix A: Project Completed – Photograph of green infrastructure practice</p> <p>Appendix B: PVSC/RCE Green Infrastructure Feasibility Study for the City of Newark</p> <p>Appendix C: Rain Garden Design Plans and Rendering</p>	

80 Johnson Avenue, Newark, NJ
Malcolm X Shabazz High School

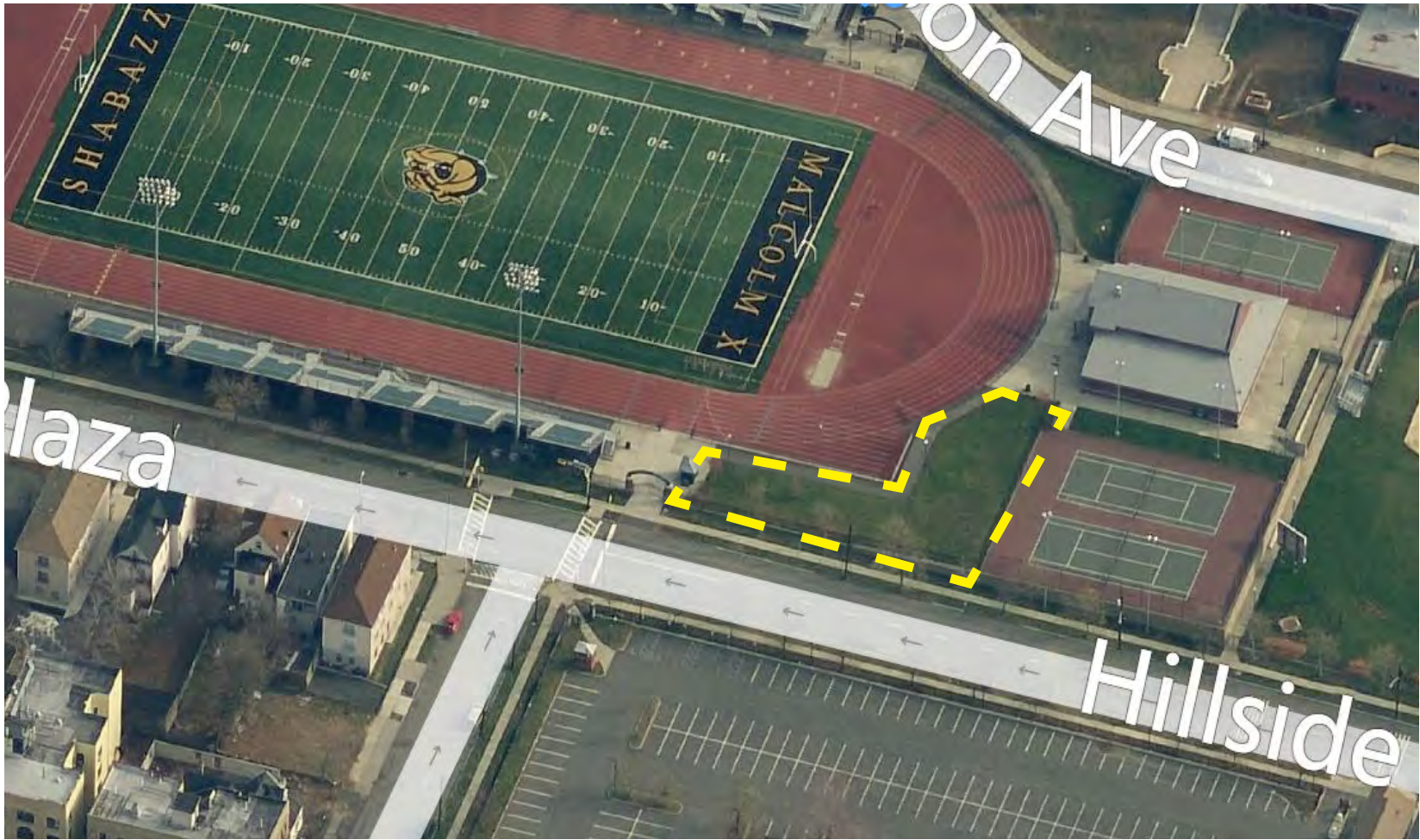
Appendix A:
Completed Project Photograph
October 17, 2014

Project Completed October 17, 2014



80 Johnson Avenue, Newark, NJ
Malcolm X Shabazz High School

Appendix B:
PVSC/RCE Green Infrastructure Feasibility Study
for the City of Newark
Pages 60-61



MALCOM X SHABAZZ HIGH SCHOOL

80 Johnson Avenue
Newark, NJ 07108



The site is Malcom X Shabazz High School located at 80 Johnson Avenue. The high school garden club will be implementing raised garden beds on the southwest side of the football field. An athletic shed sits on the site near the area of the garden beds. There is an opportunity to install a cistern to collect stormwater runoff from the shed to provide water for the garden. A rain garden can be placed to capture overflow near a catch basin sitting on the south end of the athletic shed.

SUITABLE GREEN INFRASTRUCTURE STRATEGIES:

rain gardens

curb cuts

stormwater planters

rain barrels

buffers

cisterns

pervious pavement

bioswales

depaving

80 Johnson Avenue, Newark, NJ

Malcolm X Shabazz High School

Appendix C:

Rain Garden Design Plans and Rendering

HILLSIDE AVENUE



- PLAN NOTES:**
1. CONTRACTOR SHALL SCHEDULE MEETING WITH ENGINEER AND PROPERTY OWNER PRIOR TO MOBILIZATION.
 2. CONTRACTOR SHALL VERIFY ALL INFORMATION INCLUDING ELEVATIONS AND UTILITIES PRIOR TO MOBILIZATION.
 3. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING REQUIRED APPROVALS FROM AUTHORITIES WITH JURISDICTION OVER PROPOSED WORK.
 4. CONTRACTOR SHALL COORDINATE AND CONFIRM PROJECT SCHEDULE AND WORKING HOURS WITH ENGINEER AND PROPERTY OWNER AND PROCEED IN ACCORDANCE WITH LOCAL REQUIREMENTS.
 5. CONTRACTOR SHALL COORDINATE UTILITY MARK OUT PRIOR TO MOBILIZATION.
 6. CONTRACTOR SHALL DEMO AND REMOVE ALL EXISTING ASPHALT PAVING AS SHOWN ON PLAN.
 7. CONTRACTOR SHALL HAUL REMOVED DEBRIS OFF SITE UNLESS OTHERWISE NOTED BY PROPERTY OWNER.

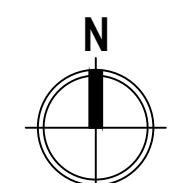

- LEGEND:**
- EXISTING FENCE
 - - - EXISTING CENTERLINE
 - · - · - · LIMIT OF WORK
 - - - EXISTING DRAINAGE AREA
 - EDGE OF PAVEMENT
 - ▭ EXISTING BUILDING

CHRISTOPHER C. OBROPTA, Ph.D., P.E.
 PROFESSIONAL ENGINEER - NJ LICENSE # 37532
 DATE 08/12/15
 APPROVED CCO
 CHECKED HWG
 DRAWN ACC

REVISIONS	No.	DATE	DESCRIPTION

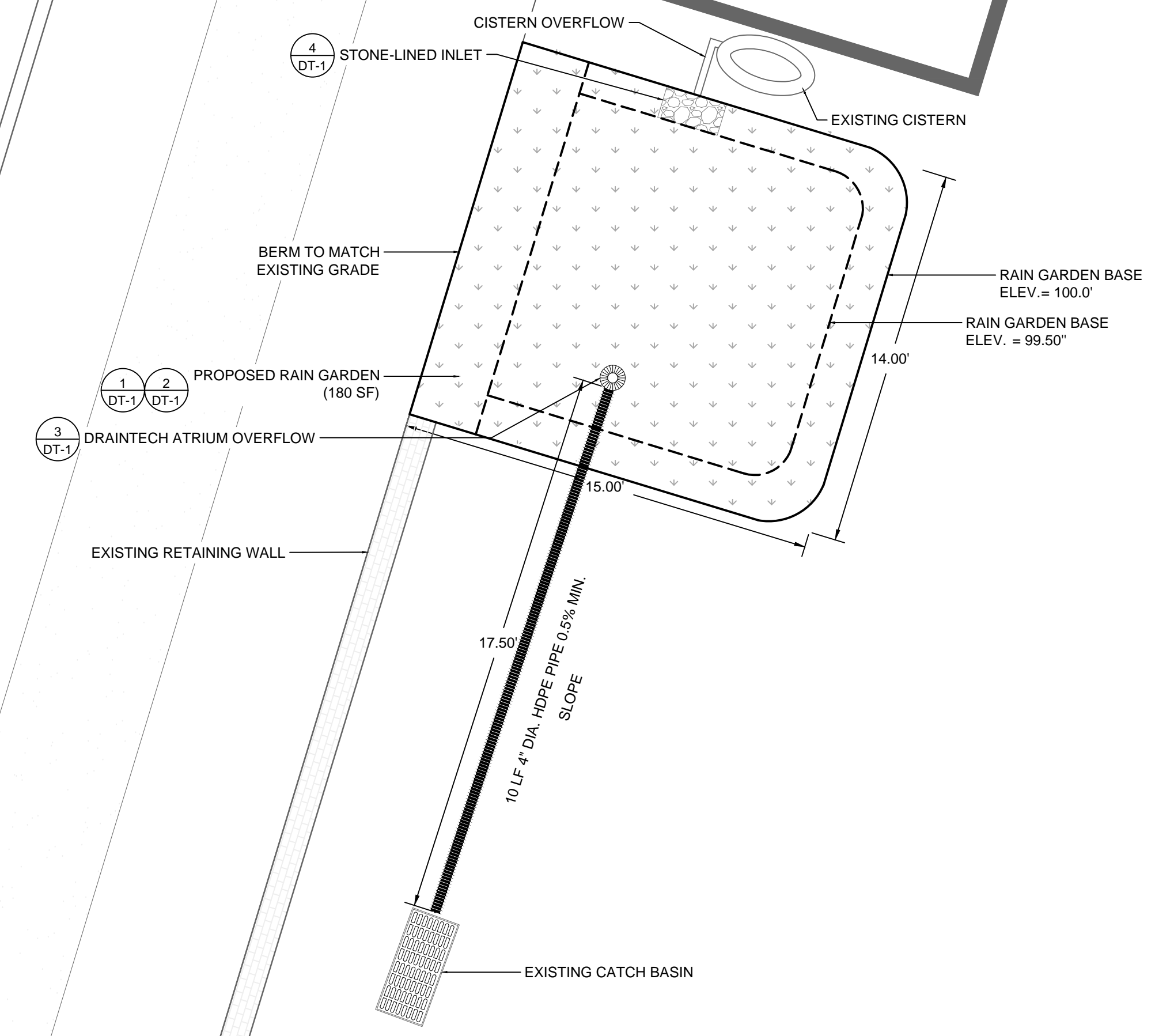
**MALCOLM X SHABAZZ HIGH SCHOOL
 NEWARK PHASE II NJDEP 319(H) IMPLEMENTATION
 PROJECT**
 80 JOHNSON AVENUE, NEWARK
 ESSEX COUNTY, NJ
EXISTING CONDITIONS AND DEMOLITION PLAN





 SCALE 1" = 4'-0"
EXISTING PLAN

SHEET #
P-2
 TOTAL # OF SHEETS
5

HILLSIDE AVENUE



- PLAN NOTES:**
1. CONTRACTOR SHALL SCHEDULE MEETING WITH ENGINEER AND PROPERTY OWNER PRIOR TO MOBILIZATION AND CONSTRUCTION.
 2. CONTRACTOR SHALL VERIFY ALL INFORMATION INCLUDING ELEVATIONS AND UTILITIES PRIOR TO CONSTRUCTION.
 3. CONTRACTOR SHALL VERIFY ALL PROPOSED MATERIALS WITH PROPERTY OWNER AND ENGINEER PRIOR TO CONSTRUCTION.
 4. CONTRACTOR SHALL STAKE OUT LOCATIONS OF PROPOSED RAIN GARDENS, STONE CHANNELS, AND TRENCH DRAIN AND OBTAIN APPROVAL FROM ENGINEER PRIOR TO INSTALLATION.
 5. CONTRACTOR SHALL INSTALL CONVENTIONAL ASPHALT AS SHOWN ON PLAN. THE ASPHALT AND CONCRETE MIXING PLANT, HAULING AND PLACING EQUIPMENT, AND INSTALLATION SHALL BE IN CONFORMANCE WITH NAPA IS 131 AND THE NJDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2007 OR LATEST VERSION.
 6. CONTRACTOR SHALL GRADE SITE AS SHOWN ON PLAN. CUT SOIL SHALL BE REUSED ON SITE FOR FILL LOCATIONS.
 7. CONTRACTOR SHALL HAUL EXCESS SOIL OFF SITE UNLESS OTHERWISE NOTED BY PROPERTY OWNER.
 8. ALL FINISHED ELEVATIONS SHALL MATCH ADJOINING PAVEMENT ENSURING SMOOTH TRANSITIONS AND NO TRIPPING HAZARDS
 9. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING ALL AREAS DISTURBED DURING CONSTRUCTION TO ORIGINAL CONDITIONS.

NOTE 1: STONE SHALL BE COMPRISED OF 3"-5" DIAMETER CLEAN, WASHED RIVER STONE. ALL AREAS OF EROSION PROTECTION STONE SHALL BE UNDERLAIN WITH GEOTEXTILE FABRIC (GEOTEX 801 BY PROPEX OR APPROVED EQUIVALENT).

LEGEND:
 PROPOSED GREEN INFRASTRUCTURE

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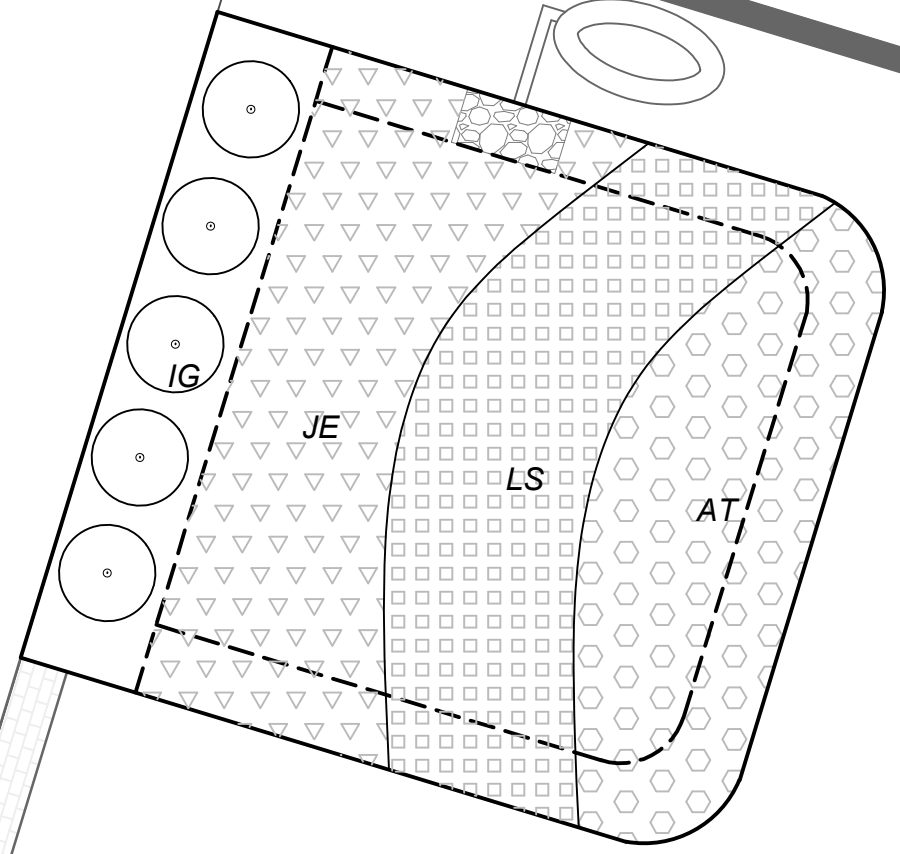
**MALCOLM X SHABAZZ HIGH SCHOOL
 NEWARK PHASE II NJDEP 319(H) IMPLEMENTATION
 PROJECT**
 80 JOHNSON AVENUE, NEWARK
 ESSEX COUNTY, NJ
PROPOSED SITE PLAN



N
 0 4' 8'
 SCALE 1" = 4'-0"
SITE PLAN

SHEET #
P-2
 TOTAL # OF SHEETS
5

HILLSIDE AVENUE



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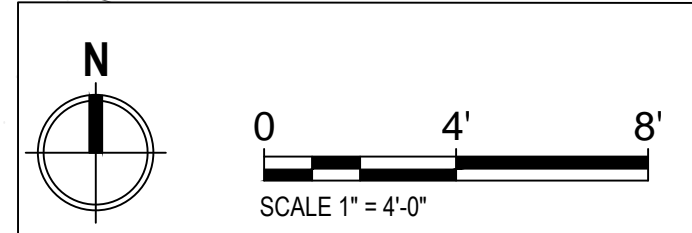
PLANT LIST

QUANTITY	SIZE	PLANT SPECIES LIST
25	PLUG	Perennials
20	PLUG	JE <i>Juncus Effusus</i>
20	PLUG	LS <i>Lobelia Siphilitica</i>
		AT <i>Asclepias Tuberosa</i>
5	Gal.	Shrubs
		IG <i>Illex Glabra</i>

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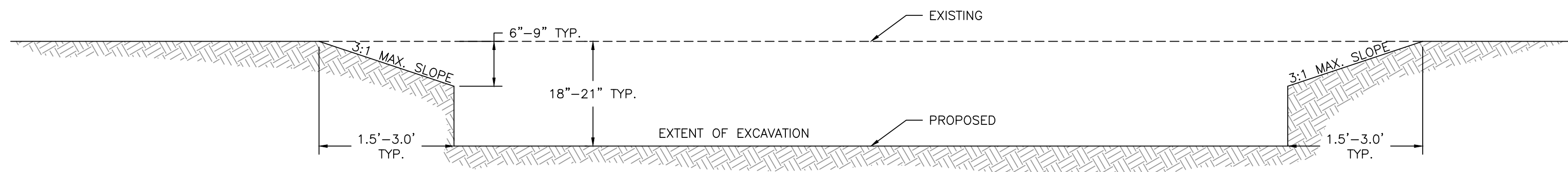
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MALCOLM X SHABAZZ HIGH SCHOOL
 NEWARK PHASE II NJDEP 319(H) IMPLEMENTATION
 PROJECT
 80 JOHNSON AVENUE, NEWARK
 ESSEX COUNTY, NJ
 PROPOSED PLANTING PLAN

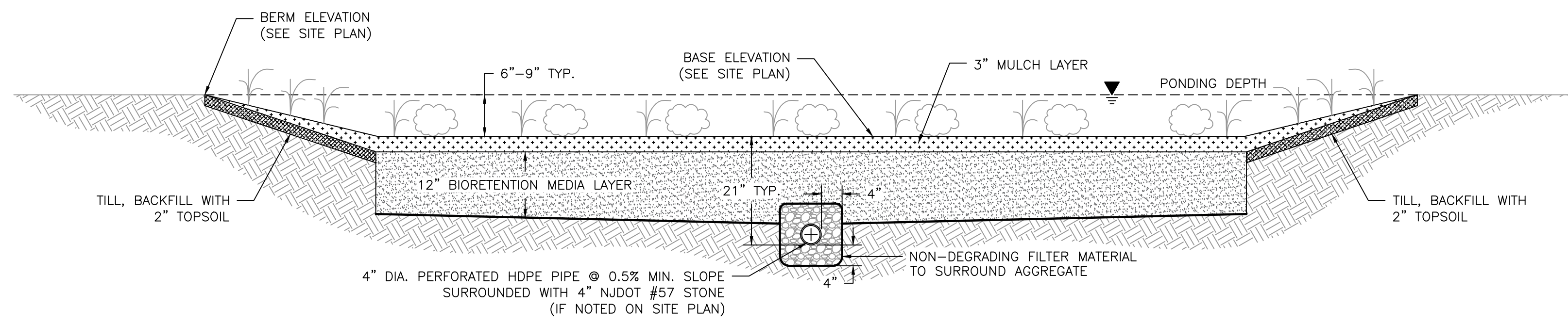


SITE PLAN

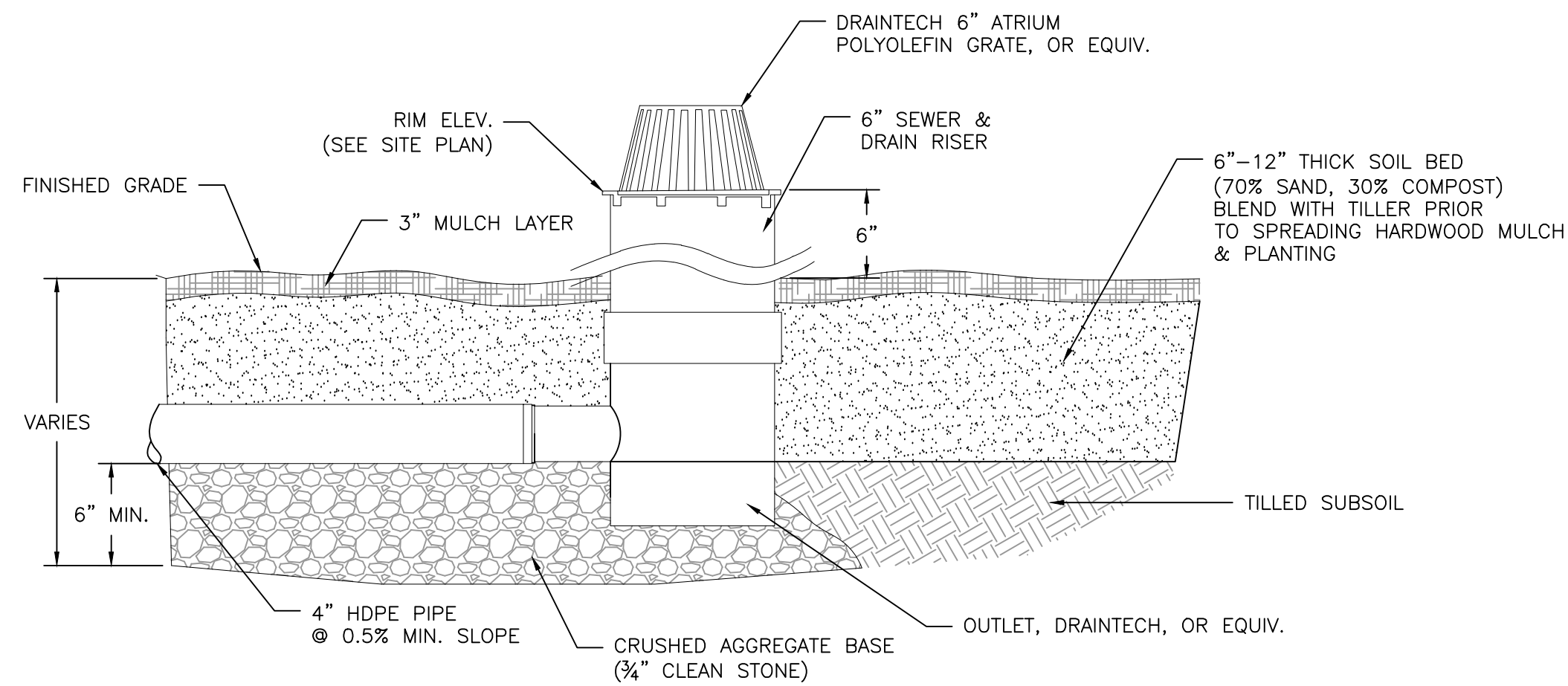
SHEET #
P-3
 TOTAL # OF SHEETS
5



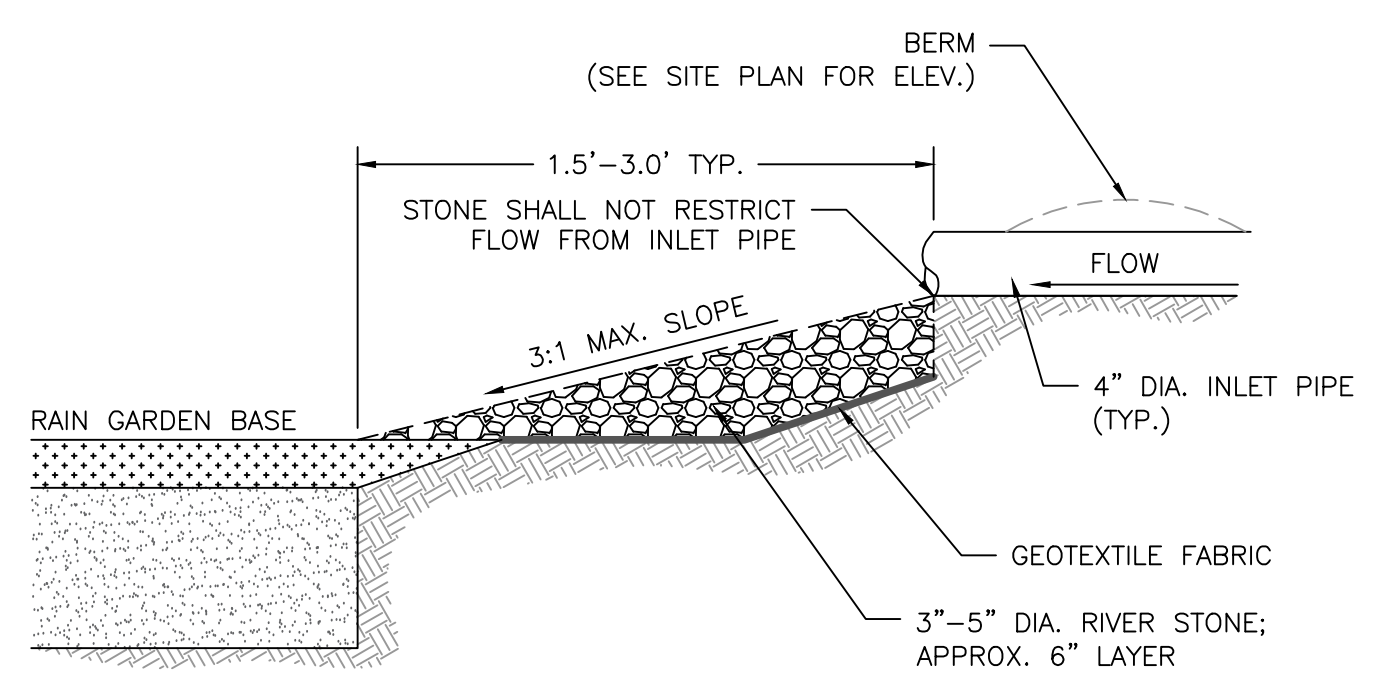
1 RAIN GARDEN EXCAVATION SECTION
DT-1 N.T.S.



2 RAIN GARDEN CROSS-SECTION
DT-1 N.T.S.



3 DRAINTECH OUTLET DETAIL
DT-1 N.T.S.



4 INLET PROTECTION CROSS-SECTION
DT-1 N.T.S.

CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL VERIFY ALL INFORMATION PRIOR TO EXCAVATION INCLUDING ELEVATIONS AND LOCATIONS OF EXISTING UTILITIES.
2. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY IF ANY FIELD CONDITIONS DIFFER MATERIALLY FROM THOSE REPRESENTED ON THESE DRAWINGS AND THE SPECIFICATIONS OR IF, IN THE CONTRACTOR'S OPINION, SAID CONDITIONS CONFLICT WITH THE DESIGNS SHOWN HEREON.
3. THE ENGINEER SHALL INSPECT ALL PLANTING BED AREAS BEFORE MULCHING TO INSURE THAT ADEQUATE DRAINAGE EXISTS. IF ANY AREAS TO BE MULCHED SHOW EVIDENCE OF POOR DRAINAGE, THE CONTRACTOR SHALL TAKE CORRECTIVE ACTION.
4. THE CONTRACTOR SHALL AVOID DISTURBING ALL EXISTING TREES. ANY DISTURBANCE TO TREES OR TREE ROOTS MUST BE COORDINATED WITH THE PROPERTY OWNER.
5. DIMENSIONS AND SHAPE WILL VARY, REFER TO SITE PLAN.
6. RIVER STONE PROTECTION DIMENSIONS ARE TYPICAL AND MAY VARY PER SITE. CONSULT THE ENGINEER AND SITE PLAN FOR DIMENSIONS ON A PER SITE BASIS.
7. RIVER STONE PROTECTION SHALL SLOPE TO RAIN GARDEN BASE.
8. REFER TO SITE PLAN TO DETERMINE OUTLET TYPE (ROCK-LINED OVERFLOW OR DRAINTECH RISER).
9. REFER TO SITE PLAN FOR ALL ELEVATIONS AND INVERTS.
10. THE CONTRACTOR SHALL EXCAVATE 12" LOWER THAN THE BASE ELEVATION SHOWN ON THE SITE PLANS. THE SLOPES OF THE RAIN GARDEN SHALL BE AT A 2:1 MINIMUM.
11. THE SUBGRADE OF THE RAIN GARDEN SHALL BE LEVEL TO ENSURE PROPER DRAINAGE. CONTRACTOR SHALL OBTAIN ENGINEER APPROVAL PRIOR TO BACKFILLING WITH 12" OF BIORETENTION MEDIA.
12. THE CONTRACTOR SHALL INSTALL OVERFLOW IF SPECIFIED IN SITE PLANS PRIOR TO BACKFILLING WITH BIORETENTION MEDIA.
13. THE BIORETENTION LAYER SHALL BE LEVEL TO ENSURE PROPER DRAINAGE. CONTRACTOR SHALL OBTAIN ENGINEER APPROVAL PRIOR TO SPREADING MULCH AND PLANTING.
14. INLET AND OUTLET PROTECTION SHALL BE UNDERLAIN WITH GEOTEXTILE FABRIC.
15. INLETS AND OUTLETS SHALL NOT INHIBIT THE FLOW OF WATER FROM THE STREET. THE RIVER STONE SHALL BE PLACED BELOW THE BOTTOM OF THE PIPE.
16. THE CONTRACTOR SHALL TILL THE BERM SECTION AND BACKFILL WITH TOPSOIL.
17. ALL DISTURBED AREAS EXCLUSIVE OF RAIN GARDEN AND SLOPED BERM SHALL BE RESTORED TO ORIGINAL CONDITIONS BY CONTRACTOR.
18. THE CONTRACTOR SHALL HAVE A PRE-CONSTRUCTION MEETING WITH THE PROJECT ENGINEER PRIOR TO ANY WORK ON SITE.

SPECIFICATIONS:

1. MAX COVER OVER TOP OF PIPE IS 4 FT. CONTACT ADS IF OTHERWISE GREATER.
2. THE APPROVAL OF MATERIALS AND MIXING OF SAND, COMPOST, AND SOIL SHALL BE DONE UNDER THE SUPERVISION OF THE PROJECT ENGINEER/LANDSCAPE ARCHITECT. BIORETENTION MEDIA SHALL CONSIST OF 70% SAND AND 30% COMPOST MIXTURE.
3. SAND SHALL AT THE MINIMUM CONFORM TO THE SIEVE ANALYSIS FOR CONCRETE AGGREGATE SAND (ASTM C-33). USGA TEE/GREEN SIEVE GRADATION MIX IS PREFERABLE WHERE AVAILABLE.
4. UNDERLYING SOILS SHALL BE TILLED/SCARIFIED PRIOR TO SPREADING/MIXING OF BIORETENTION MEDIA.
5. ALL BIORETENTION MEDIA SHALL BE PLACED FROM THE SIDES OF THE FACILITIES, AND IN NO EVENT SHALL ANY TRACKED OR WHEELED EQUIPMENT BE PERMITTED TO CROSS THE RAIN GARDEN.
6. RAIN GARDEN SHALL BE CONSTRUCTED TO DIMENSIONS INDICATED ON THE SITE PLAN.
7. 3-5 INCH DELAWARE RIVER STONE SHALL BE USED FOR STONE CHANNEL AND INLET/OUTLET PROTECTION.
8. NON-DYED, TRIPLE-SHREDED HARDWOOD MULCH SHALL BE USED.
9. PLANTING OF RAIN GARDEN AND SLOPED BERM SHALL BE COMPLETED AS INDICATED ON THE SITE PLAN.
10. THE CONTRACTOR SHALL PERFORM ALL WORK IN CONFORMANCE WITH THE NJDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2007 OR LATEST VERSION.

CHRISTOPHER C. OBROPTA, PH.D., P.E.
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Christopher C. Obropta

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MALCOLM X SHABAZZ HIGH SCHOOL
NEWARK PHASE II NJDEP 319(H) IMPLEMENTATION PROJECT
80 JOHNSON AVENUE, NEWARK
ESSEX COUNTY, NJ
DETAILS

RUTGERS
New Jersey Agricultural
Experiment Station

SHEET #
DT-1

TOTAL # OF SHEETS
5



**MALCOLM X SHABAZZ HIGH SCHOOL
NEWARK PHASE II NJDEP 319(H) IMPLEMENTATION
PROJECT
80 JOHNSON AVENUE, NEWARK
ESSEX COUNTY, NJ
PROPOSED PLANTING PLAN**



SHEET #
DT-2
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